0816

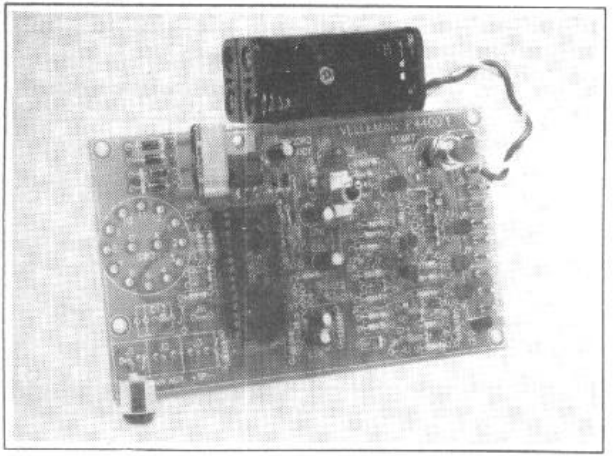
HIGH-Q velleman-kit

K4400

ELECTRONIC RECORD/PLAYBACK MODULE

- EXCELLENT SOUND QUALITY
- RECORDING TIME: 12 TO 20 SECONDS PER MODULE
- LOUDSPEAKER OUTPUT
- MESSAGE REMAINS STORED IN ABSENCE OF SUPPLY
- MULTIPLE MODULES ARE CASCADABLE
- SUPPLY: 9 to 12VAC or 6VDC (only 15µA in standby)
- DIMENSIONS: 125 x 70 x 25mm

modifications reserved



ELECTRONIC RECORDING AND PLAYBACK MODULE

To speak of recording and playback, without additional mechanical elements, has long been the dream of many an electronics enthusiast. How many applications are there where a few lines of speech need to be repeated over and over again ? Think for example of the doorbell: let the waiting visitor know that you are on your way. Or welcome your customers with a friendly greeting. Make it clear to would-be intruders that although you are not at home, the alarm system will alert the entire neighbourhood if they so much as make a single attempt at gaining entry. And we have yet to say anything of the less serious applications such as with toys, ice breakers at parties, etc.

Technical Data

- Excellent sound quality
- Max recording time: 12 to 20 seconds per module
- Expansion possibility to connect multiple modules in cascade
- Automatic message repetition facility available
- Up to a maximum of 5 different recordings can be selected with record and playback.
- Message remains stored, even in the absence of a power supply
- Standard (8 Ohms) loudspeaker can be connected in
- Supply: 9 to 12VAC or battery supply 6VDC (4 x 1.5V)
- Power consumption per module with battery supply:
  Standby: 15µA max
  record: 26mA
  playback: 50mA max
- Power consumption per module with transformer supply:
  Standby: 7mA
  record: 40mA
  playback: 75mA max
- Dimensions: 125 x 70 x 25 mm

ASSEMBLY

- MOUNT ALL COMPONENTS AGAINST THE P.C.B.
- USE A SMALL SOLDERING IRON OF MAX. 40W
- USE THIN (1mm) SOLDERING TIN
- DO NOT USE SOLDERING GREASE!
- CARELESS ASSEMBLY WILL UNDOUBTEDLY LEAD TO PROBLEMS

Mount the components in the order indicated in the separate parts list. The parts marked with (!) require special attention in the assembly instructions.

1- Jumpers, marked with J on the PCB.
2- Resistors
3- Diodes. Check the polarity !
4- IC sockets
5- LEDs Check the polarity !
6- Capacitors
7- Electrolytic capacitors. Check the polarity !
8- Transistors
9- Voltage regulator
10- PCB pins
11- Push button. (This can also be connected externally between the points marked GND and STRT)
12- Switch. (This can also be connected externally between the points marked GND and REC).

Connect the microphone. Attention: the casing lip of the microphone is connected together with the adjacent connection to MIC- and MIC+

NOTE: in order to avoid mechanical interference from the push button, the microphone can be placed a short distance from the PCB using a small length of screened cable.

Connection

ATTENTION: Never solder to the pcb while the supply is connected.

- One module:
  mount JR and JE, see fig 1.0.
  For repeat mode with playback:
  Connect RPT to STRT, see fig 1.0.
  Note: this connection must be disconnected during recording.

- Two or more modules in cascade:
  Mount JR and JE on the last module. Mount JC on the remaining module(s), see fig 5.0.
  For connections between different modules, see fig 5.0.
  For the repeat mode in playback: connect RPT of the last module to STRT of the first module, see fig 5.0.
  ATTENTION: this connection must be disconnected when recording.
  Note: When in playback mode it is perfectly normal to hear a "click" when transfer from one module to the next takes place.

- Recording via microphone
  Mount JM on the first module.

- Recording via line input:
  Connect the audio signal to AIN and GND, see fig 3.0.
  The sensitivity can be adjusted using a trimmer potentiometer.
  Max input signal: 25mV rms.

- Playback via loudspeaker:
  Connect a loudspeaker of 8 Ohms to SP- and SP+ of the first module.

- Playback via line output:
  Connect to SP+ and GND, see fig 4.0.
  The volume can be controlled with a potentiometer.

Supply

- With transformer: see fig 1.0.
  Note: if more than 5 modules are to be used in cascade with a transformer supply, then the voltage regulator of the first module must be fitted with a heatsink.

- With batteries: see fig 2.0. Check the polarity !

Instructions for use:

- Switch on the voltage supply
- Place the switch to the RECORD setting (switch closed).
- LED, LD1 should now be lit.
- With microphone recording; press on the push button while speaking into the microphone. Recording lasts for as long as this button is pressed. If it is pressed for too long, LD2 will light up when the maximum recording time has elapsed.
  After recording put the switch back to the PLAY setting.

- Playback:
  The switch must be in the PLAY position, (switch open).
  Both LEDs should now be unlit.
  Depress the push button. Do not keep the button pressed!
  Playback starts and stops automatically at the end of the recording.
  When the REPEAT option has been installed, playback is continually repeated.

Options

- If a 5 pole switch is installed, record and playback can be selected from 5 different blocks, (order number 8404-1C or 8404-2C).

P4400

1

J

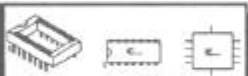
2

R1: 10 (1-0-0-B)
R2, R3: 470 (4-7-1-B)
R4: 2K2 (2-2-2-B)
R5... R8: 10K (1-0-3-B)
R9... R17: 47K (4-7-3-B)
R18... R20: 1M5 (1-5-5-B)
R21... R24: 220K (2-2-4-B)
R25: 470K (4-7-4-B)
R26: 1M (1-0-5-B)
R27, R28: 1M5 (1-5-5-B)

3

D1... D14: 1N4148 I
D15... D18: 1N4000 ... 4007 I

4



IC1: 24P

5

LD1, LD2: 5mm LED I

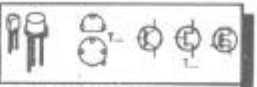
6

C1... C9: 100nF (µ1, 104)
C10... C12: 220nF (µ22, 224)
C13, C14: 470nF (µ47, 474)

7

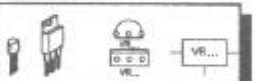
C15: 4.7µF I
C16... C19: 47µF I
C20: 1000µF I

8



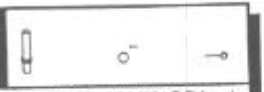
T1... T5: BC547B
T6, T7: BC557B

9



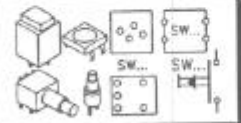
VR1: 7806

10



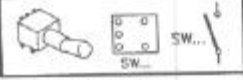
MIC (+,-); AIN; AUX; SP(+,-)
2xAC; 6VDC(+,-); GND; +V
STRT; NXT; REC; STP; RPT

11



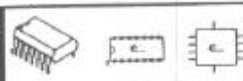
SW1: 1P (ON) I

12



SW2: 1P ON / OFF I

13



IC1: ISD1012 ... ISD1020 I

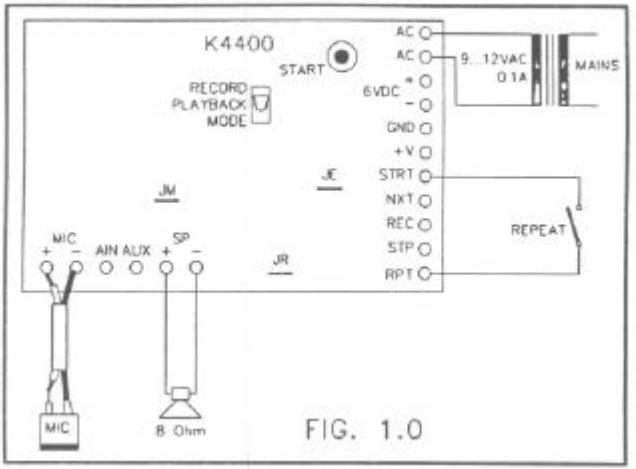

K4400
START
RECORD
PLAYBACK
MODE
AC
AC
6VDC
+
-
GND
+V
STRT
NXT
REC
STP
RPT
9...12VAC
0.1A
MAINS
JM
JE
JR
MIC
AIN AUX
SP
REPEAT
MIC
8 Ohm

FIG. 1.0

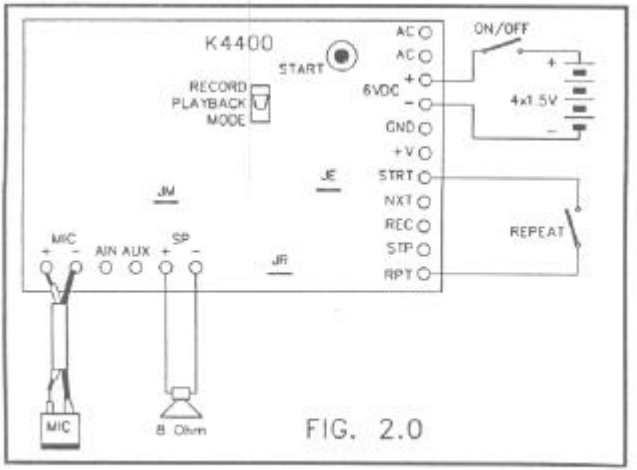

K4400
START
RECORD
PLAYBACK
MODE
AC
AC
6VDC
+
-
GND
+V
STRT
NXT
REC
STP
RPT
ON/OFF
4x1.5V
JM
JE
JR
MIC
AIN AUX
SP
REPEAT
MIC
8 Ohm

FIG. 2.0

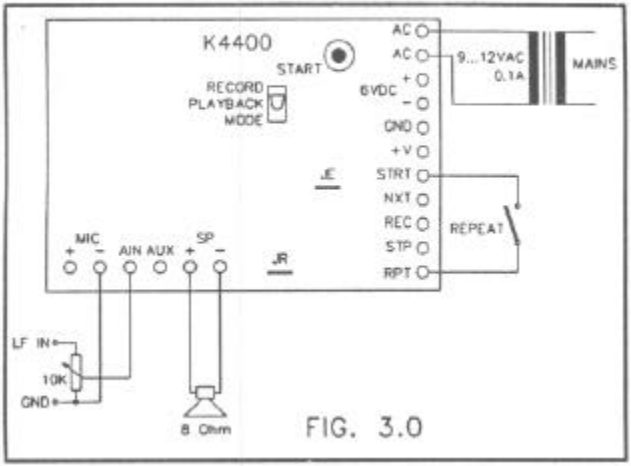

K4400
START
RECORD
PLAYBACK
MODE
AC
AC
9...12VAC
0.1A
MAINS
6VDC
+
-
GND
+V
STRT
NXT
REC
STP
RPT
JE
REPEAT
MIC
AIN AUX
SP
JR
LF IN
10K
GND
8 Ohm

FIG. 3.0

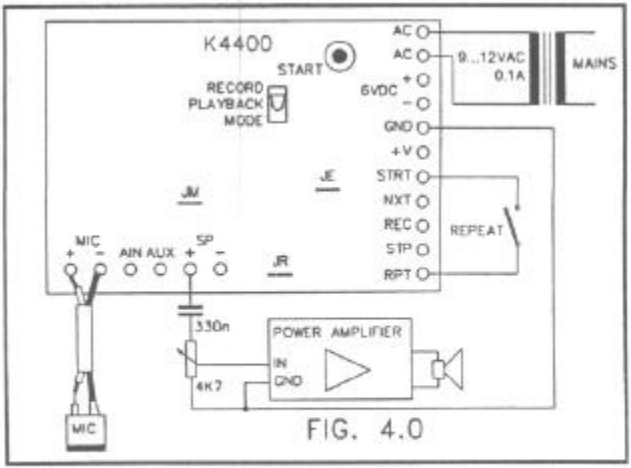

K4400
START
RECORD
PLAYBACK
MODE
AC
AC
9...12VAC
0.1A
MAINS
6VDC
+
-
GND
+V
STRT
NXT
REC
STP
RPT
JE
JM
REPEAT
MIC
AIN AUX
SP
JR
330n
POWER AMPLIFIER
IN
GND
4K7
MIC

FIG. 4.0

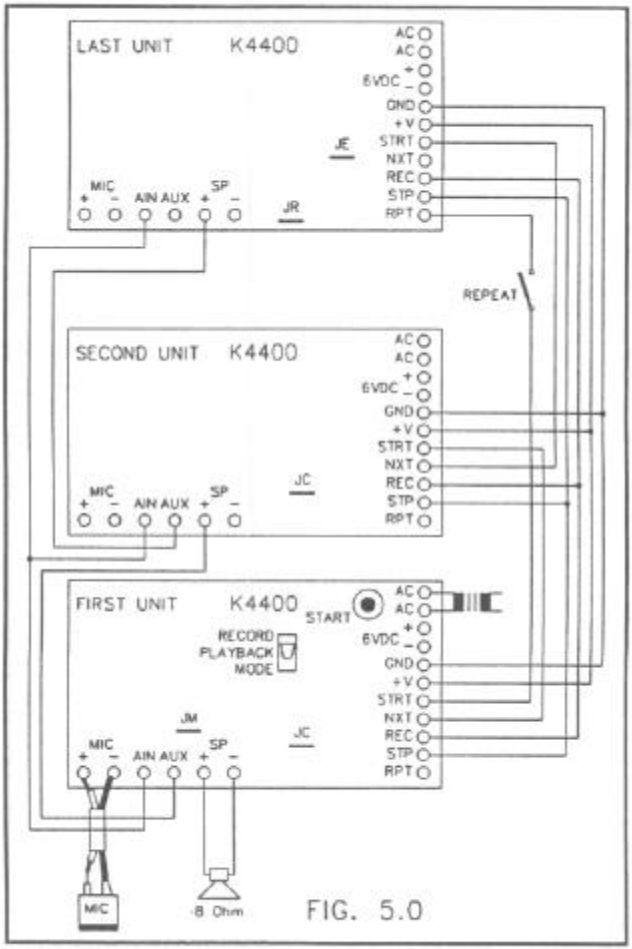
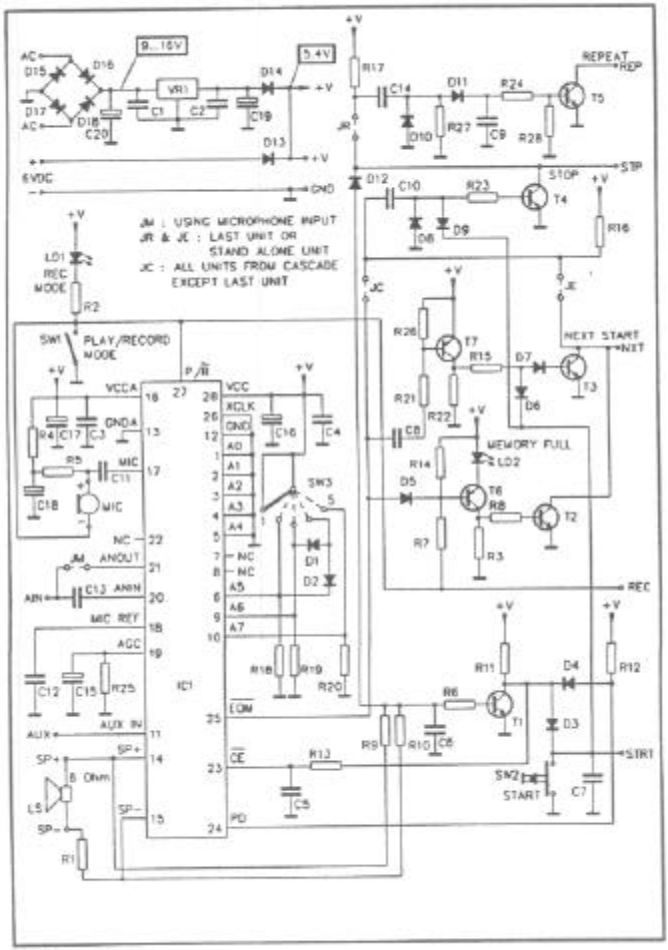
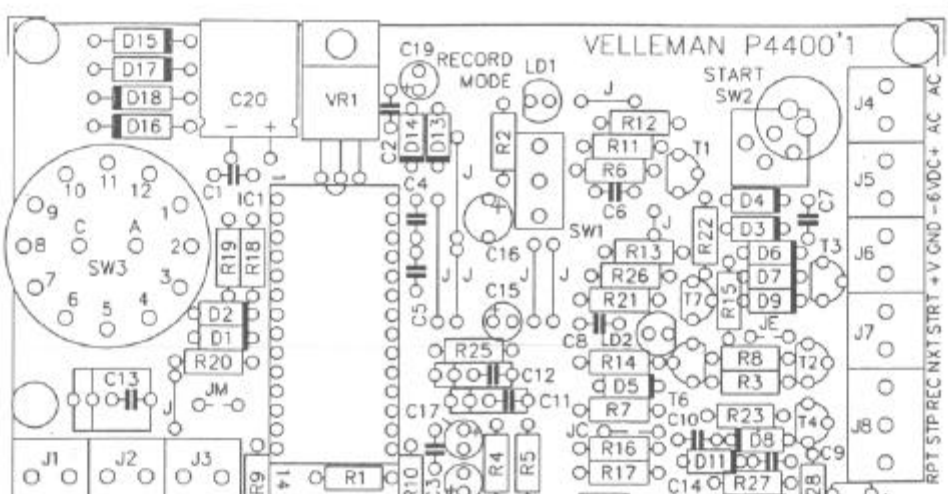
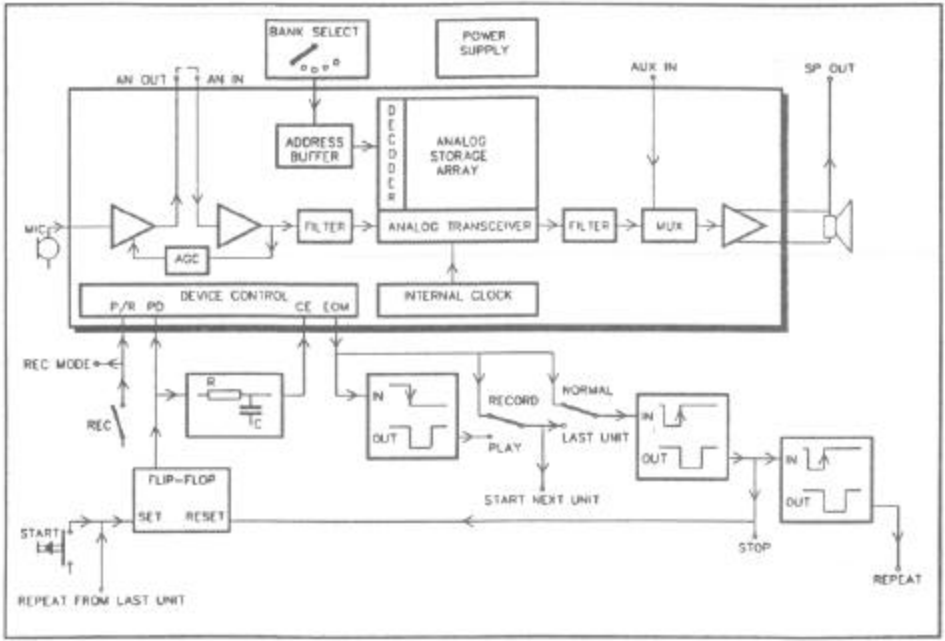

LAST UNIT
K4400
AC
AC
6VDC
GND
+V
STRT
NXT
REC
STP
RPT
JE
MIC
AIN AUX
SP
JR
REPEAT
SECOND UNIT
K4400
JC
FIRST UNIT
K4400
START
RECORD
PLAYBACK
MODE
JM
8 Ohm

FIG. 5.0


9...16V
5.4V
VR1
REPEAT
REP
6VDC
GND
STOP
STP
JM : USING MICROPHONE INPUT
JR & JE : LAST UNIT OR
STAND ALONE UNIT
JC : ALL UNITS FROM CASCADE
EXCEPT LAST UNIT
LD1
REC
MODE
SW1
PLAY/RECORD
MODE
NEXT START
NXT
MEMORY FULL
LD2
MIC
REC
AUX IN
8 Ohm
SW2
START
STR1
IC1


VELLEMAN P4400'1
RECORD MODE
START
SW2
LD1
VR1
C20
C19
IC1
SW1
SW3
T1
T2
T3
T4
T5
T6
T7
JM
JE
JC
JR
J1
J2
J3
J4
J5
J6
J7
J8
+MIC- AIN AUX +SP-
RPT STP REC NXT STRT +V GND -6VDC+ AC AC


BANK SELECT
POWER SUPPLY
AN OUT
AN IN
AUX IN
SP OUT
ADDRESS BUFFER
DECODER
ANALOG STORAGE ARRAY
MIC
AGC
FILTER
ANALOG TRANSCEIVER
FILTER
MUX
DEVICE CONTROL
P/R PD
CE COM
INTERNAL CLOCK
REC MODE
REC
R
C
IN
OUT
RECORD
NORMAL
PLAY
LAST UNIT
START NEXT UNIT
FLIP-FLOP
SET
RESET
START
STOP
REPEAT
REPEAT FROM LAST UNIT